Final Abstract Number: 41.258
Session: Poster Session I
Date: Thursday, March 3, 2016
Time: 12:45-14:15
Room: Hall 3 (Posters & Exhibition)

Periodicity in the waxing and waning of Influenza A H1N1: A report from a tertiary care center in Chennai India

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Background: Influenza A H1N1 re emerged in 2009 causing a pandemic and continues to circulate worldwide seasonally. This study was undertaken to characterize Influenza A H 1N1 in a tertiary care center over six years.

Methods & Materials: Throat swabs/nasopharyngeal samples were collected from patients who reported an influenza like illness(ILI)sent in viral transport medium in refrigerated condition to the laboratory. RNA was extracted from the clinical specimens. One step Real Time Reverse Transcriptase Polymerase Chain Reaction was performed (Ambion kit) using specific primers (INF A, universal SwineA, Swine H1 and RNaseP) and the Taqman probe (CDC protocol). Amplification was performed using Real time PCR (ABI 7900HT) system (reverse transcription for 30min at 50^0C and initial activation for 10min at 95^0C followed by 45 cycles of primer annealing and extension at 95^0C for 15sec and 55^0C for 30sec).

Results: A total of 2382 samples were analyzed, n = 480(20.15%) tested positive for novel Influenza A H1N1 and n = 102 (4.28%) tested positive for seasonal influenza A. The positivity rate was 46.08% in 2009, fell from 15.02% (2010), to 1% by 2011; was 22% in 2012 just 1.86% in 2013, 7.096% in 2014 and is currently 44.2% as of Oct 2015. The age of patients ranged from 10 days to >81 years. Influenza Ah1n1 accounted for 25.35% of ILI in children (0-18 years) . The rate of positivity in adults was found to be similar across age groups of 21-60 years (range 19.7%- 21.1%) and declined to 13.5% in greater than 61 years of age. Cough (84.2%) was the predominant symptom, followed by fever (83.75%), breathlessness (55.2%), body ache (54.8%), vomiting (21.4%), diarrhoea (9.58%), 4.4% gave history of travel abroad. Based on the duration of illness the rate of positivity was found to be 78.54% from day one to day 7 of ILI. However 5.62% were positive between day 10 to 30.

Conclusion: There is a cyclical occurrence in the seasonality of Influenza H1N1. Vulnerable groups such as pregnant and lactating mothers may require targeted intervention.

http://dx.doi.org/10.1016/j.ijid.2016.02.445

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Clinical features, cytokine profiles and immune response in children with severe hand foot and mouth disease in Vietnam

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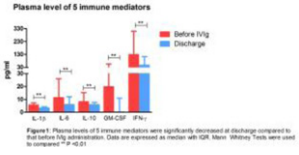
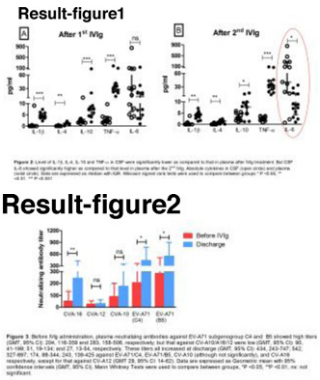
Background: Hand, foot and mouth disease (HFMD) is an emerging infection in Asia. Neurological complication and fatality are typically associated with enterovirus A71 (EV-A71). Intravenous immunoglobulin (IVIg) is widely used in the treatment of severe cases, albeit without clinical evidence. This study characterized clinical features, virology, cytokine profiles and immune responses in severe HFMD children receiving IVIg.

Methods & Materials: A prospective study was conducted in the ICU of Children's Hospital 2 (Ho Chi Minh City, Vietnam) from June to September 2012 enrolled HFMD children with clinical indication to have CSF taken. Clinical data, diagnostic throat/rectal swabs, CSF after IVIg, plasma before and after IVIg and at discharge were collected. Plasma cytokines/chemokines and antibodies against common HFMD associated viruses were assessed before and after IVIg and at discharge. Cytokines/chemokines were assessed in CSF.

Results: Thirty patients were enrolled (grade 2b, n=15, grade 3, 13 and grade 4, 2). Twenty-five patients recovered, 2 died and 3 with unknown outcome due to withdrawing. Clinical characteristics improved within 48 hours of admission in grade 2b and after 72 hours in grade 3 patients, coinciding with 1st and 2nd doses of IVIg administration. EV-A71 was detected in swabs of 25 patients and in CSF of 1, and other EVs in swabs of 3. The level of 10 cytokines/chemokines in CSF was comparable between patients receiving one and two IVIg doses, which were also unchanged before and after IVIg in plasma. At discharge, plasma IL-1β, IL-6, IL-10, GM-CSF and IFN-γ were significantly decreased (Figure 1). CSF IL-1β, IL-4, IL-10 and TNF-α were significantly lower as compared to that in plasma after IVIg. In contrast, CSF IL-6 was significantly higher than that in plasma after the 2nd IVIg ($P < 0.05$) (Figure 2). Before IVIg, plasma neutralizing antibody levels against EV-A71 subgenogroup C4 and B5 were high but that against CV-A10/A16/12 were low (Figure 3). These titers increased after IVIg except for that against CV-A12.





Conclusion: We have described the clinical characteristics, immunological profile and outcome of 30 severe HFMD children with IVIg administration, which is informative for disease management. Cross-neutralization data from this study is important for vaccine design and development in the future.

http://dx.doi.org/10.1016/j.ijid.2016.02.446

Type: Poster Presentation

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Atypical presentation of epidemic typhus in South India: A case report

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Background: Epidemic typhus is due to R. prowazekii. In India the endemic spot is Kashmir. Infection is transmitted when the contaminated louse faces is rubbed through the minute abrasions caused by scratching. Occasionally, infection may also be transmitted by aerosols of dried louse faces through inhalation or through the conjunctiva. Incubation period is 5 - 15 days. They infect the vascular endothelium and reticuloendothelial cells with 40%case fatality. A characteristic rash sparing the face, palms and soles. Towards the second week, the patient becomes stuporous and delirious. Thrombocytopenia is observed in more than half of the patients.

Methods & Materials: A 17 years old male patient, residing in hostel, complained of high grade fever since 9 days and after 4 days of fever, rashes appeared first on trunk which spread over limbs but sparing face, palm and sole and consequently changed into purpura fulminans. On day 6th patient had syncope with seizure. On day 9th patient was admitted in ICU because of altered sensorium with left facial paralysis without neck rigidity. Immediately empirical treatment was started with cephaperazone-sulbactum, doxycycline and acyclovir and de-escalated subsequently. Investigation showed Hb 13.6 gm/dl, WBC 14900 /mm3 (Neutrophil 79%) and platelet 26000/mm3. CSF and other blood examination done were normal. Weil-Felix test was positive (by tube agglutination, to proteus antigen OX19 (1:640); OXK (1:640); OX2 (negative)). CT and further MRI brain were normal.

Results: The case appears atypical because suspected encephalitis resolved fast in one day without any sequel. Patient had high grade fever till day 17,which responded to12 days of doxycycline. Initial presentation of case was like acute stroke andreview of literature also sparsely reported this butinvestigations did not support this. Suspected neurorickettsioses disappeared rapidly, is also very atypical in pathogenesis of vasculitis. Prolonged high grade fever till day 17, was investigated for malaria and tuberculous meningitis. Weil-Felix Test report was high with equal titresin 0X19 & OXK which is also atypical.

Conclusion: For rare organisms, clinical presentation and investigation reports can be vague. Lack of facility to confirm rickettsioses is the biggest limitation.In current scenario Rickettsioses is diagnosed by relevant clinical findings and Weil-Felix test positivity.

http://dx.doi.org/10.1016/j.ijid.2016.02.447

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Real-Time PCR studies regarding the borrelia burgdorferi, francisella tularensis, tick borne encephalitis virus (TBEv) and crimeean congo hemorrhagic fever virus (CCHFv) occurrence in the Romanian ticks

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Background: Our studies undertaken between 2006-2015 have shown that the most frequent species of ticks in Romania is *Ixodes ricinus.* It was found that *I. ricinus* is the main vector in Romania for the *Borrelia burgdorferi s.l.* and for the TBEv, but no data were available for *Francisella tularensis* and *CCHFv* infectious agents occurrence into *I.ricinus and Hyalomma sp.*

Three Romanian counties were selected as ticks sampling sites (Sibiu , Tulcea and Giurgiu), with this occasion we collected ticks